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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

IMMERSION CORPORATION, Plaintiff, v. FITBIT, INC., Defendant.	CASE NO. 5:17-cv-03886-LHK **DEFENDANT FITBIT, INC.'S RESPONSIVE CLAIM CONSTRUCTION BRIEF** **[Declaration of Dr. Blake Hannaford filed herewith]** **DATE: May 10, 2018** **TIME: 1:30 p.m.** **CTRM: Courtroom 8, 4th Floor** **JUDGE: Honorable Lucy H. Koh**

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Pursuant to Patent Local Rule 4-5(b) and the Case Management Order (Dkt. 35), Defendant Fitbit, Inc. ("Fitbit") hereby submits its Responsive Claim Construction Brief and accompanying declaration of Dr. Blake Hannaford regarding U.S. Patent Nos. 8,059,105 ("'105 patent") and 8,351,299 ("'299 patent").

I. INTRODUCTION

After the Court's ruling on Fitbit's motion to dismiss invalidating one of the three patents-in-suit under 35 U.S.C. § 101, four claim terms from two patents remain in dispute between the parties.[1] The parties agree that two of those terms are governed by 35 U.S.C. § 112(6) ("§ 112(6)"), but dispute whether the patent discloses sufficient corresponding structure to perform the claimed function. For the other two terms, Fitbit has proposed constructions consistent with the intrinsic evidence, while Immersion has either proposed no additional construction, or sought to import an unjustified restriction into the claim.

For the terms governed by § 112(6), the case law is clear that disclosure of a general-purpose processor is not sufficient to provide corresponding structure for a means-plus-function limitation if the processor would need to be programmed to provide the recited function. If that is the case, the specification must provide a "particular algorithm" or "specific source code" for carrying out the function on the generic processor. The '105 and '299 patents do not provide either for the terms at issue, and at best merely repeat the claimed function itself, which according to the Federal Circuit is insufficient to save such claims, even in cases involving the most basic claimed functions. Faced with these facts, Immersion attempts to compensate by pointing to an alleged contradiction between these arguments and Fitbit's positions in its pending *inter partes* review ("IPR"), where it did not

[1] A fifth term, "haptic feedback device," was previously in dispute. Without conferring with Fitbit, Immersion stated in its opening brief that "[t]he parties have agreed" that the term "shall be accorded [its] plain and ordinary meaning." Br. at 4. The term *should* be given its plain and ordinary meaning because no special meaning is indicated by the readily-understandable claim language or any other intrinsic evidence, and Immersion concedes no special meaning applies. Although Immersion suggests that the alleged "agreement" is that Fitbit's *alternative* proposal should govern instead of according the term its plain and ordinary meaning, Fitbit does not agree: as Immersion concedes is the correct approach, the term should be given its plain and ordinary meaning, not Fitbit's proposed alternative, for these reasons.

argue for indefiniteness. But no such contradiction exists—under the broader claim construction standards applicable to IPR proceedings, this phrase is not governed by § 112(6). And there is no estoppel: the Patent Trial and Appeal Board ("PTAB") cannot, as a matter of law, institute proceedings based on indefiniteness, nor has it reached any decisions yet as to Fitbit's IPR petitions, institution or otherwise.

As to the term "generate a force signal based on the input signal" in the '105 patent, in the event the element as a whole in which it appears is not found to be indefinite, this term should be construed in light of the specification, which makes clear that the patent's "force signal" is generated to cause a haptic effect that *depends on* the input signal—such as a particular haptic effect specific to receipt of an email, and another effect specific to an event in a game. Indeed, the patent makes clear that is a central part of the alleged invention. Immersion's suggestion that the claimed "force signal" need not depend on the input signal divorces the claims from the specification by removing a central component of the alleged invention.

The term "periodic" in the '299 patent should likewise be construed in accordance with the specification. The specification explains that "periodic" means occurring at ***regular*** intervals, and contradicts Immersion's assertion that "periodic" should encompass ***irregular*** intervals. The applicants explicitly differentiated irregular intervals from the term "periodic" in the specification, leaving no doubt that the term does not encompass irregular intervals.

II. LEGAL PRINCIPLES OF CLAIM CONSTRUCTION

Although the claim language defines the legal scope of the patent, the primary source of evidence for claim construction is the entire body of intrinsic evidence, *i.e.*, "the patent itself, including the claims, the specification and, if in evidence, the prosecution history." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). The Federal Circuit confirmed the primacy of intrinsic evidence in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). The words used in a claim are generally given their ordinary and customary meaning, which "is its meaning to the ordinary artisan after reading the entire patent." *See id.* at 1321. Moreover, the patent's specification remains the "single best guide to the meaning of a disputed term," and "[u]sually, it is dispositive" on claim construction. *Id.* at 1314-17. A means-plus-function claim

limitation "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112(6). In particular, "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). "If the function is performed by a general purpose computer or microprocessor, then the specification must also disclose the algorithm that the computer performs to accomplish that function." *Triton Tech of Texas, LLC v. Nintendo of Am., Inc.*, 753 F.3d 1375, 1378 (Fed. Cir. 2014).

III. U.S. PATENT NO. 8,059,105

A. Overview

The '105 patent, entitled "Haptic Feedback for Touchpads and Other Touch Controls," generally describes two embodiments: (1) providing haptic feedback to a person interactively using a touch pad or touch screen in a computer system; and (2) providing a haptic effect on a haptic feedback device based on user-independent events, not necessarily involving a touch pad or touch screen. *See, e.g.*, '105 patent at Abstract, 1:50-2:13; *see also* Compl. ¶ 31. While the overwhelming majority of the specification relates to the first embodiment, the asserted claims relate to the second embodiment. The "Background" section states that "[t]he subject matter described relates generally to the ***interfacing with computer and mechanical devices by a user***, and more particularly to devices used to interface with computer systems and electronic devices and which provide haptic feedback to the user." '105 patent at 1:28-32. The patent states that "[t]he user contacts the touchpad most commonly with a fingertip and moves his or her finger on the pad to move a cursor displayed in the graphical environment." *Id.* at 1:58-61. The patent alleges that, at the time of the patent, "[o]ne problem with existing touchpads [was] that there is no haptic feedback provided to the user." *Id.* at 1:64-65. The patent states that this was a disadvantage because "[t]he user of a touchpad is therefore not able to experience haptic sensations that assist and inform the user of targeting and other control tasks within the graphical environment." *Id.* at 1:65-2:1.

The patent thus identifies as the problem to be solved the alleged need to provide haptic feedback to a user of a touchpad or touch screen, in order to assist the user in targeting and other

control tasks within a computerized graphical environment (*e.g.*, using a touchpad to move a cursor). The description in the specification relates almost entirely to describing means for achieving this goal.[2] Claims 1-18, including independent claims 1, 7, 14, 15, 16, 17, and 18 each relate to this first embodiment, each claim requiring either a "touch screen" or "touch input device."

The claims that Immersion asserts in this case—claims 19, 20, and 21—do not concern this first embodiment: they do not require a touch screen or touch input device, and are directed to what the patent refers to as "user-independent events," *e.g.*, providing a particular vibration to notify the user of receipt of an email. Only two paragraphs of the patent's specification contain any disclosure related to this embodiment, and even then only discuss it functionally. '105 patent at 12:50-67, 13:15-27. As to what can qualify as a "user-independent event," the claims list them specifically: "one or more of a reminder event, an initiation of a task, a processing of the task, a conclusion of the task, a receipt of an email, or an event occurring in a game." *Id.*, cl. 19.

Claim 19, the sole asserted independent claim, is representative:

> 19. A haptic feedback device, comprising:
> one or more processors configured to receive an input signal and generate a force signal based on the input signal,
> wherein the input signal is associated with a user-independent event,
> the user-independent event comprising one or more of a reminder event, an initiation of a task, a processing of the task, a conclusion of the task, a receipt of an email, or an event occurring in a game; and
> one or more actuators configured to receive the force signal and impart a haptic effect based on the force signal.

B. Disputed Terms

1. "one or more processors configured to receive an input signal and generate a force signal based on the input signal, wherein the input signal is associated with a user-independent event" (claim 19)

[2] For example, the patent describes that when a user is working in a graphical environment on a computer, interacting with various menus and web links, "a pulse can be output when the cursor is moved between menu elements in a menu, moved over [an] icon, or moved over a hyperlink." '105 patent at 2:51-53; *see also id.* at 2:58-60 ("different regions" of the touch pad input device "and borders between regions can be associated with different haptic sensations."), 11:10-15 ("a force is output depending on the location of the cursor as it moves over a designated textured area" of the graphical environment.), 11:36-37 (a vibration can be "output on the touchpad 16 based on interaction between a cursor and a window.").

a. The "One Or More Processors" Element Is Indefinite

The phrase "one or more processors configured to receive an input signal and generate a force signal based on the input signal, wherein the input signal is associated with a user-independent event" is invalid for requiring a general-purpose processor to implement the generating function, without disclosing a particular algorithm to do so.[3]

It is well-established that where, as here, a means-plus-function element only includes a general purpose processor for structure, the specification must disclose a "particular algorithm" to "transform the disclosure of a general-purpose microprocessor into the disclosure of sufficient structure to satisfy section 112 paragraph 6." *Aristocrat Techs. v. Australia Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1335 (Fed. Cir. 2008). That is so even in cases of the most basic functions, where one of ordinary skill in the art would know, on his or her own, how to implement an algorithm to accomplish the claimed function. *Id.* at 1336 ("Whether the disclosure would enable one of ordinary skill in the art to make and use the invention is not at issue here. Instead, the pertinent question in this case is whether [the] patent discloses structure that is used to perform the claimed function."), 1337 ("It is not enough for the patentee simply to state or later argue that persons of ordinary skill in the art would know what structures to use to accomplish the claimed function."). This requirement is the mandatory *quid pro quo* for purely functional claiming such as that at issue here and is essential to confining the breadth of protection in such circumstances. *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1318 (Fed. Cir. 2012) ("In exchange for being able to draft a claim limitation in purely functional language, the applicant must describe in the patent specification some structure which performs the specified function. . . . Requiring the disclosure of a corresponding structure, thus, *confines the breadth of protection otherwise permitted by purely functional claiming*.").

[3] Specifically, the parties agree that this term is governed by 112(6). For purposes of assessing indefiniteness, Fitbit agrees that Immersion's proposed function—"receive an input signal and generate a force signal based on the input signal, wherein the input signal is associated with a user-independent event"—can be used. The parties further agree that the corresponding structure for that function is a microprocessor or other electronic controller, or equivalents thereof.

Here, the entirety of the disclosure of the claimed embodiment—which regards alerts based on "user-independent events"—is contained in two paragraphs in the specification, neither of which provides any algorithm for how to "generate a force signal based on the input signal" associated with a user-independent event. '105 patent at 12:50-67, 13:24-27. Instead, the specification only describes other aspects of the embodiment recited in other parts of the claim—*e.g.*, outputting an actual vibration to the user, which necessarily occurs ***after*** the force signal has been generated:

> User-independent events can also be relayed to the user using haptic sensations on the touchpad. An event occurring within the graphical environment, such as an appointment reminder, receipt of email, explosion in a game, etc., can be signified ***using a vibration, pulse, or other time-based force***. The force sensation can be varied to signify different events of the same type. ***For example, vibrations of different frequency*** can each be used to differentiate different events or different characteristics of events, such as particular users sending email, the priority of an event, or the initiation or conclusion of particular tasks (e.g. the downloading of a document or data over a network). When the host system is "thinking," requiring the user to wait while a function is being performed or accessed (usually when a timer is displayed by the host) it is often a surprise when the function is complete. If the user takes his or her eyes off the screen, he or she may not be aware that the function is complete. A pulse sensation can be sent to indicate that the "thinking" is over.
> . . .
> ***Force sensations can also be output*** based on user-independent events in the game or simulation, such as pulses when bullets are fired at the user's character.

'105 patent at 12:50-67, 13:24-27. There is no disclosure of an algorithm the processor must perform in order to "generate a force signal based on the input signal." At best, this disclosure—which concerns ways in which a haptic effect can be output—relates to a ***different*** claim element. *See, e.g., id.*, cl. 19 (the step of "one or more actuators configured to receive the force signal ***and impart a haptic effect based on the force signal***").

In these circumstances, the Federal Circuit has repeatedly found claim elements indefinite for failing to provide corresponding structure. For example, in *Aristocrat Technologies*, the term at issue, which related to a slot machine, was "the game control means being arranged to pay a prize when a predetermined combination of symbols is displayed in a predetermined arrangement of symbol positions selected by a player." *Aristocrat Techs.*, 521 F.3d at 1331. The patentee pointed to the figure and table below for structure, which the court agreed "provide[d] examples of how player selections translate to possible winning combinations":

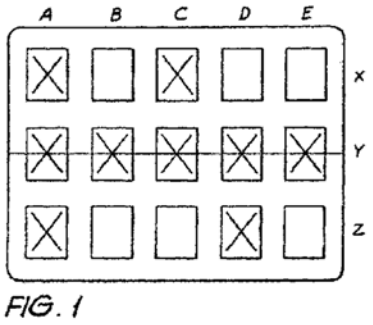

FIG. 1

TABLE 1

LINE NO	DISPLAY POSITIONS USED				
1	AX	BY	CX	DY	EY
2	AX	BY	CX	DZ	EY
3	AX	BY	CY	DY	EY
4	AX	BY	CY	DZ	EY

TABLE 1-continued

LINE NO	DISPLAY POSITIONS USED				
5	AY	BY	CX	DY	EY
6	AY	BY	CX	DZ	EY
7	AY	BY	CY	DY	EY
8	AY	BY	CY	DZ	EY
9	AZ	BY	CX	DY	EY
10	AZ	BY	CX	DZ	EY
11	AZ	BY	CY	DY	EY
12	AZ	BY	CY	DZ	EY

The court also acknowledged that the "corresponding portion of the written description contains mathematical descriptions of how many winning combinations would be produced." *Id.* at 1335. Despite this, the court held the claim indefinite for lack of an algorithm. *Id*. Critically, as in the case of the user-independent event paragraphs in the '105 patent, the court held that the patent at issue in *Aristocrat* only included examples of the ***results*** of an unspecified algorithm, as opposed to a disclosure of the algorithm itself: "The figures, tables, and related discussion, however, are not algorithms. ***They are simply examples of the results of the operation of an unspecified algorithm***." *Id.* The same is true of the evidence for the "user-independent event" embodiment—it describes only the result of generating the force signal, *i.e.*, outputting a vibration to the user.

This is not a case where it is not possible to disclose a specific algorithm corresponding to the claimed function. To the contrary, the specification ***could have*** disclosed any number of algorithms and related structures corresponding to the claimed function, but it did not. For example, to create the claimed "association" between the input signal and user-independent event, any number of algorithms can be used. For example, algorithms could be used to pre-set the association in memory or alternatively allow it to be assigned dynamically, assigned by a user during operation, or any number of alternatives. Declaration of Blake Hannaford ("Hannaford Decl.") at ¶¶ 30-31. Further, the association could be one-to-one or something else, such as choosing from a number of distinct options for a given event, either randomly or in a predefined way. *Id*. Next, to generate a force signal *based on the input signal, wherein the input signal is associated with a user-independent event*, processing resources such as arithmetic logic units ("ALUs") could be used to classify the input as one which relates to the given event using any of a number of methods, for example by using pattern recognition, a vector quantizer, a neural network, or any number of other classification

algorithms. *Id.* Alternatively, the incoming signal could come into the processor in a pre-classified way such that the processor does not need to perform the analysis, either via a dedicated hardware pin on the processor, or using a specially-encoded signal. *Id*. Next, in order to determine what force signal to output, the system could look up a force signal corresponding to the input signal in a lookup table, or could use a mathematical function that evaluates any number of parameters regarding the input signal and outputs one or more parameters of the force signal. *Id*. To perform the claimed "generating" of the force signal, an algorithm could specify that ALUs do it, or alternatively a specialized digital signal processing hardware unit or a graphics processing unit inside the general-purpose processor could do so. *Id.* None of these approaches, let alone any other corresponding algorithm or structure, is disclosed, and the claim is thus unbound and indefinite. *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1385 (Fed. Cir. 2009) ("That ordinarily skilled artisans could carry out the recited function in a variety of ways is ***precisely why*** claims written in 'means-plus-function' form must disclose the particular structure that is used to perform the recited function.").

Recognizing that there is no algorithm disclosed in the "user-independent event" embodiment, Immersion attempts to gap-fill by reference to a completely different embodiment—the user-*dependent* event embodiment—that is subject of different claims. *See, e.g.*, Immersion Opening Brief ("Br.") at 6-9. Such disclosures do not suffice for several reasons. First, it is well-established that "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history ***clearly links or associates that structure to the function recited in the claim***." *B. Braun Med., Inc.*, 124 F.3d at 1424. No such clear link is present here. Specifically, the limitation at issue requires structure "generate a force signal based on the input signal, wherein the input signal is associated with a user-***independent*** event." But all of Immersion's citations relate exclusively to the generation of user-***dependent*** events, and are thus not applicable to claim 19. For example, Immersion cites to the portion of the specification describing an embodiment in which vibrations occur as a result of ***user interaction*** with a touch pad. '105 patent at 5:9-17; Br. at 7. Nothing in this passage relates to how to "generate a force signal based on the input signal, wherein the input signal is associated with a user-***independent*** event." Indeed, just

two sentences prior to the quotation Immersion selectively excerpts, the patent explicitly associates this functionality with the user-***dependent*** embodiment, stating that "[u]sing one or more actuators coupled to the touchpad 16, a variety of haptic sensations can be output to ***the user who is contacting the pad***." *Id.* at 5:6-8. That the output vibrations can be independent of "finger position" does not transform this embodiment into the "user-independent event" embodiment or disclose an algorithm for generating a force signal based on an input signal, let alone one reflecting a user-independent event—even if the haptic is able to ignore the *position* of the user's finger, the user's finger is still driving the haptic event. Moreover, the user-dependent functionality cannot simply be ported over to the user-independent embodiment because it regards completely different functions: generating a force signal on the one hand based on events such the receipt of an email, and generating a force signal based on a user's tactile interaction with a touch screen on the other. Hannaford Decl. at ¶ 34.

The rest of Immersion's citations for the "generating a force signal" aspect do not change the analysis, as they also clearly relate to the user-dependent embodiment and are not linked to the claim limitation at issue. Br. at 8 (citing '105 Patent at 6:22-27 (embodiment in which "appropriate sensors (and related circuitry) are used to report the position of the user's finger on the touchpad"), 6:19-22 (same embodiment), 7:35-39 (embodiment in which "tip of a user's finger [] is touching the pad"), 8:18-20 (not relating to the processor's activities at all).[4] Faced with these issues, Immersion attempts to ***add*** a requirement to the claimed function *i.e.,* that the function is to "generate one or more electronic signals that define the form of a haptic effect based on the user-independent event applied ***to a touch device***." Br. at 4-5. But there is no such requirement in claim 19, and the argument that "every single embodiment" involves a touch device (Br. at 9) is inapposite.[5]

[4] Immersion's remaining citations are not relevant to the "generating" function, instead relating merely to receiving an input signal (Br. at 7) and to imparting the haptic effect by the actuator (Br. at 8) (a step not even at issue in this claim limitation), and similarly do not provide an algorithm for "generat[ing] a force signal based on the input signal."

[5] Claim 21's reference to a "touch input device" was corrected via Certificate of Correction and replaced with "haptic feedback device," confirming that claim 19 does not require a touch input device.

Second, differing embodiments aside, nothing that Immersion cites provides an algorithm to "generate a force signal based on the input signal." Like the user-independent event description above, these passages do not explain ***how*** to "generate a force signal based on the input signal" that will go to the actuator. Instead, they relate only to the ***result*** of that process, referring to generation of generic "electronic signals," "control signals," and "commands." *See* Br. at 8; Meldal Decl. ¶¶ 31-32; '105 patent at 5:9-17 ("controlling the magnitude and/or direction of the force output of the actuator(s) ***using electronic signals***"), 6:22-27 (explaining that the ***host processor can output "commands*** including, for example, the type of haptic sensation and parameters describing the commanded haptic sensation"), 6:19-22 ("The touchpad device also includes ***circuitry that receives signals from the host and outputs tactile sensations*** in accordance with the host signals using one or more actuators."); 7:35-39 ("The frequency of vibration output by an actuator can be varied by ***providing different control signals to an actuator***. Furthermore, the magnitude of a pulse or vibration can be controlled based on the applied control signal"), 8:18-20 ("The operation of piezo-electric actuators to ***output force based on an input electrical signal*** is well known to those skilled in the art."). Other citations are admitted by Immersion only to relate to the output itself. Br. at 8-9 ("The specification also discloses numerous forms of haptic effects that may be output").

These excerpts state that the processor can (1) output commands to an actuator, (2) output tactile sensations, and (3) provide control signals to an actuator.[6] Like the above, none of this evidence relates to ***how*** a force signal is ***generated*** by a processor, only that once it is, it can be sent to an actuator and is so generic that it fails to "transform the disclosure of a general-purpose microprocessor into the disclosure of sufficient structure to satisfy section 112 paragraph 6." *Aristocrat Techs.*, 521 F.3d at 1335; *see also, e.g.*, *Cloud Farm Assocs. LP v. Volkswagen Grp. of Am., Inc.*, 674 F. App'x 1000, 1011 (Fed. Cir. 2017) ("Merely restating the function in the specification is insufficient to provide the required algorithm."). For example, in *ePlus, Inc. v. Lawson Software, Inc.*, the term at issue was "means for processing said requisition to ***generate***

[6] The fourth citation, '105 patent at 8:18-20, describes that an *actuator* can output a force, and is not relevant to the processor's "generating" step.

purchase orders for said selected matching items." *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 513 (Fed. Cir. 2012). The patentee pointed to block 114 in the below flow diagram and the statement that "a requisition [that] has been inventory sourced and accepted . . . can be converted to one or more purchase orders, as represented by step 114 in FIG. 3":

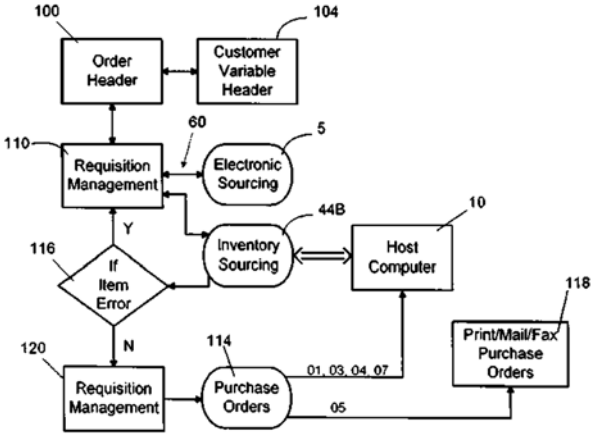

FIG. 3

Id. at 518. The court held that "***[t]here is no*** instruction for using a particular piece of hardware, employing a specific source code, or following a ***particular algorithm***. There is therefore nothing in the specification to help cabin the scope of the functional language in the means for processing element: The patentee has in effect claimed everything that generates purchase orders under the sun." *Id.* at 519. Similarly here, there is no particular algorithm relating to the function and nothing in the specification to cabin the functional "generating" language of the claims. The only support discusses completely generalized "electronic signals," "control signals," and "commands," which, in the world of a general purpose processor, is "everything under the sun." *Id.*

As indicated above, Immersion's reliance on the knowledge of a person of ordinary skill in the art to make up for these deficiencies is legally invalid. Br. at 9-10. In fact, the *ePlus* court rejected this very argument from a patentee who cited the exact same case Immersion relies on here. Immersion cites *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376 (Fed. Cir. 2011) for the proposition that knowledge of a person of skill in the art is enough. Br. at 9-10. Not so. In that case, the appellate court reversed on the basis that even though no mathematical formula was disclosed, there was a particular algorithm described in prose. *Typhoon Touch Techs.*, 659 F.3d at 1386. In cases like this where ***no*** algorithm is disclosed, the Federal Circuit comes out differently—

e.g., the *ePlus* court ***rejected*** reliance on knowledge of a person of skill in the art under *Typhoon Touch* when there is ***no*** algorithm disclosed (even in prose). *ePlus*, 700 F.3d at 519-20 ("[C]ontrary to ePlus's argument, our decision in *Typhoon Touch Technologies, Inc. v. Dell, Inc.*, 659 F.3d 1376, 1385–86 (Fed. Cir. 2011), does not compel a different result . . . Unlike in *Typhoon Technologies*, there is not even a recitation in simple prose that can be deciphered as a structural limitation on the patent claims."). The Federal Circuit similarly held that *AllVoice Computing PLC v. Nuance Communications, Inc.*, 504 F.3d 1236 (Fed. Cir. 2007), which Immersion cites for the same premise, "has no application here, because in this case there was no algorithm at all disclosed." *Aristocrat Techs.*, 521 F.3d at 1337. Just as in *ePlus* and *Aristocrat*, there is no algorithm for the claimed function, and Immersion cannot gap-fill by resorting to what one of ordinary skill would allegedly read into the specification.

Critically, the PTAB recently held that another Immersion patent failed to disclose sufficient structure for a very similar means-plus-function limitation involving "generating" an electronic signal, based on an input signal, to drive an actuator. *Apple Inc. v. Immersion Inc.*, No. IPR2016-01372, 2017 WL 376909 (P.T.A.B. Jan. 11, 2017). In the *Apple v. Immersion* IPR, the term at issue was "a drive module electronically coupled to the haptic output device for receiving a first gesture signal, receiving a second gesture signal, and ***generating a dynamic interaction parameter*** using the first gesture signal and the second gesture signal." The PTAB noted that, much like the evidence Immersion points to here, the specification referred generically to "instructions that, when executed by processor 12, ***generate drive signals for actuator 18***." *Apple Inc.*, 2017 WL 376909, at *5. This closely parallels the evidence Immersion points to for the instant claim limitation, which describes use of generic "electronic signals," "control signals," and "commands" to drive the "actuator" of claim 19. In fact, the Immersion patent at issue in the *Apple* IPR contained significantly more detail than the '105 patent does, and the claim was still found indefinite. The PTAB explained that the patent clarifies that "an interaction parameter that provides dynamic haptic effects can be derived from gestures 'using information such as the position, direction, and velocity' of the gestures" and that "[t]he Specification further describes that an interaction parameter is generated using a gesture difference vector, which is obtained by comparing a gesture signal to a haptic effect signal." *Id.* at

*7. Moreover, the patent contained a highly-detailed table, Table 2, that the PTAB found "list[ed] various methods of synthesis along with a brief description of each method." *Id.* Despite all this detail, the PTAB held that "[t]he Specification, however, does not disclose any well-defined or otherwise recognizable sequence of steps" that give meaning to the generic "drive signals." *Id.* Thus, the PTAB found "generating" term to be indefinite for lack of disclosing sufficient structure. *Id.* The same should be true here.

b. Immersion's Estoppel Argument Should Be Rejected

Immersion's estoppel argument—which even Immersion concedes is facially insufficient (Br. at 4)—should be rejected. Immersion argues that because Fitbit did not assert that the two means-plus-function terms at issue here are governed by § 112(6) and are indefinite in its IPR petitions, it should be estopped from asserting that position here. Immersion is incorrect. First, there is no contradiction in positions: Fitbit's § 112(6) arguments in this Court would be inappropriate in the PTAB, given the difference in claim construction standards. In the PTAB, under the "broadest reasonable construction" standard, a construction requiring application of § 112(6), which ***narrows*** claim scope, would be inappropriate. 37 CFR § 42.100. By contrast, district courts use a narrower standard that "seek[s] out the correct construction . . . under the framework laid out in *Phillips*." *PPC Broadband, Inc. v. Corning Optical Commc'ns RF, LLC*, 815 F.3d 734, 740 (Fed. Cir. 2016). Because § 112(6) restricts the claim scope to embodiments disclosed in the specification and equivalents thereof, it narrows the claim meaning, and thus may not be the "broadest reasonable construction" while still being perfectly acceptable in district court. Simply put, the two proceedings may use different constructions, due to the different standards. Far from presenting a contradiction, the Supreme Court has held that such conflicting positions are within Congress's intent. *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2146, (2016) ("These different evidentiary burdens mean that the possibility of inconsistent results is inherent to Congress' regulatory design."). Although the claims are indefinite under a narrower § 112(6) analysis, that does not impact Fitbit's ability to compare the functional language of the claims to the prior art.

As to estoppel, although the PTAB can opine that claims are indefinite, as it did with an Immersion patent very recently in the *Apple* IPR, it lacks jurisdiction to ***invalidate*** claims due to indefiniteness. As such, Fitbit could not have raised indefiniteness, let alone prevailed on it: doing so would have caused the PTAB to not institute the IPR as a matter of law, without even looking at the prior art. Moreover, Immersion's demand is premature as the PTAB has not reached any institution or final decisions yet. For all these reasons, there should be no estoppel in this claim construction proceeding.

2. "generate a force signal based on the input signal" (claim 19)

If the Court finds the above term indefinite, construction of this term is not necessary, because it is contained within the above term. If not, however, construction is necessary to resolve the parties' dispute about its meaning. Consistent with Fitbit's construction, both Claim 19 and the specification of the '105 patent provide that the claimed "force signal" is generated so as to cause a haptic effect that depends on the input signal, which the claim provides is associated with a user-independent event.

In the claim, the force signal is generated and, later in the claim, "one or more actuators … receive the force signal and impart a haptic effect based on the force signal." '105 patent, cl. 19. Thus, the one or more actuators of the claim receive the force signal and impart a haptic effect based on the force signal, which in turn was "generate[d] . . . based on the input signal." As discussed above, claim 19 states that the "input signal" is "associated with a user-independent event." *Id*. Below is the entire description of the user-independent event embodiment:

> ***User-independent events*** can also be ***relayed to the user using haptic sensations*** on the touchpad. ***An event*** occurring within the graphical environment, such as an appointment reminder, receipt of email, explosion in a game, etc., ***can be signified using a vibration, pulse, or other time-based force***. ***The force sensation can be varied to signify different events of the same type. For example, vibrations of different frequency can each be used to differentiate different events or different characteristics of events, such as particular users sending email, the priority of an event, or the initiation or conclusion of particular tasks (e.g. the downloading of a document or data over a network).*** When the host system is "thinking," requiring the user to wait while a function is being performed or accessed (usually when a timer is displayed by the host) it is often a surprise when the function is complete. If the user takes his or her eyes off the screen, he or she may not be aware that the function is complete. A pulse sensation can be sent to indicate that the "thinking" is over.

> . . .
> Force sensations can also be output based on ***user-independent events*** in the game or simulation, such as pulses when bullets are fired at the user's character.

'105 patent at 12:50-67, 13:24-27. The "user-independent event" language and embodiment appear nowhere else in the specification. As this description explains, the haptic effect "***relay[s]*** to the user" a user-independent event—in particular, the force sensation is able to be varied "to ***signify*** different events." *Id.* Various methods of "relaying" and "signify[ing]" are disclosed, such as using "vibrations of different frequency." '105 patent at 12:50-67. Although the patent is not restricted to these particular ***ways*** of signifying the user-independent event to the user, there is no doubt that the specification provides that the ***purpose*** of the haptic effect—and thus the force signal—itself is to relay the event to the user, *i.e.*, to "signify" the particular type of event to the user through a haptic event. Consistent with this, the claim's recital of generating a force signal "based on" the input signal refers to a force signal "depending on" the input signal. Indeed, the only description of the user-independent event embodiment in the patent explains that this is the purpose of the force signal. A force signal that does ***not*** depend on the input signal—for example, a force signal that is uniform for every type of user-independent event—would not "relay" or "signify" the particular event to the user, and so would omit the critical aspect of the user-independent embodiment from the claim.

Immersion argues that Fitbit's construction "broadens the force signal to include any signal that results in a haptic effect, even if the signal is not sent to an actuator." Br. at 11. That is incorrect. The force signal indisputably must be received by "one or more actuators," as recited in the final element of claim 19, "one or more actuators configured to receive the force signal and impart a haptic effect based on the force signal," which is not at issue here and not impacted by Fitbit's construction or argument. Nor does Fitbit's construction equate the "input signal" and "force signal," as Immersion argues. *Id*. The very claim language at issue requires generating a force signal based on the input signal, and Fitbit's construction does nothing to change that.

Instead of proposing a construction for this claim language, Immersion instead argues that this term need not be construed at all because it is contained within the broader phrase discussed in the section above. Br. at 10-11. But if the Court does not find the broader phrase to be indefinite, there is a substantive dispute between the parties about the meaning of this aspect of the phrase that

should be resolved through the claim construction process. Immersion argues that the corresponding structure should include the phrase "generating one or more electronic signals ***that define the form of a haptic effect based on the user-independent event*** applied to a touch device." But that language does not resolve whether "defin[ing] the form" of the haptic effect "based on" the user-independent event does or does not require that the form of haptic effect ***depend on*** the user-independent event. That substantive dispute between the parties should be resolved through claim construction.

IV. U.S. PATENT NO. 8,351,299

A. Overview

The '299 patent, entitled "Apparatus and Method for Providing Condition-Based Vibrotactile Feedback," generally relates to providing a haptic notification when a timer expires and/or when motion is sensed. *See, e.g.*, '299 patent at Abstract; *see also* Compl. ¶ 33. The patent primarily focuses on describing a motion-sensing toothbrush that alerts the user after a certain number of brush strokes or expiration of a timer, beginning its "Background" section with the inarguable observation that "[t]here are many benefits to practicing proper dental hygiene" and noting that "depending on the speed that people brush their teeth, two minutes might not be long enough to adequately brush the entire mouth or it might be more than enough time." '299 patent at 1:23–24, 1:57–60; *see also id.* at 2:9–18. The patent also provides an example of a "physical therapy or exercise system" that vibrates after a certain amount of movement or expiration of a timer. *Id.* at Fig. 7, 2:65–67. The patent uses a very simple block diagram—including a sensor, processing device, and "vibrotactile device" (*i.e.*, a vibrating device)—to illustrate the alleged invention. *Id.* at Fig. 4. Figure 4 illustrates a device 400 that includes a sensor 410, processing device 22, and vibrotactile device 420. The specification explains that the sensor 410 senses "one or more parameters and provides a sensor output indicative of some aspect of such one or more parameters." '299 patent at 7:57–59. In turn, the processing device 22 "processes the sensor output from sensor 410 and upon an occurrence of one or more conditions associated with the sensor output, provides an output to a vibrotactile device 420." *Id.* at 7:59–62. Ultimately, the vibrotactile device 420 provides a haptic output to a user of the device. *Id.* at 7:62–64.

Exemplary claim 14 of the '299 patent is illustrative for the terms at issue here:

Claim 14. An apparatus comprising:
a sensor that senses motion of at least a portion of the apparatus and provides a sensor output based on the sensed motion;
a timer that provides a periodic timer output;
a vibrotactile device responsive to the timer that provides a corresponding periodic haptic output; and
a processing device that receives the sensor output and accumulates counts associated with the sensor output, the processing device providing an output to the vibrotactile device once a threshold associated with the accumulated counts is reached.

B. Disputed Terms

1. "periodic" (claim 14)

Contrary to Immersion's contention, the '299 specification makes clear that the word "periodic" in the claims of the '299 patent means "occurring at regular intervals," consistent with Fitbit's construction. Although Immersion urges the Court to adopt "plain and ordinary meaning" as the construction of this term, Immersion's arguments reveal that it intends to eventually argue that even ***irregular*** intervals can be considered "periodic." Br. at 12-13. Because Immersion's argument is inconsistent with the specification and plain meaning of "periodic," and effectively reads the word "periodic" out of the claims, it is incorrect and should be rejected.

Claim 14 of the '299 patent uses the word "periodic" in two places. First, the claim refers to "a timer that provides a ***periodic timer output***." The specification explains that this timer output occurs at regular intervals, distinguishing a ***periodic*** timer output from a timer output that corresponds to multiple different (***irregular***) timer outputs. Figure 5 depicts a conceptual overview of the device of the claims. That device includes a timer, which is connected to a vibrotactile device through a processing device to cause the vibrotactile device to vibrate. '299 patent, Fig. 5; *see also id.* at 8:31-32. In explaining the timer functionality, the specification distinguishes two different embodiments: (1) an embodiment in which "timer 510 provides a timer output corresponding to a ***plurality of time periods***," plural; and (2) an embodiment in which a "timer 510 provides a ***periodic time period***," singular. '299 patent at 8:43–46. In the first embodiment, there can be multiple different time "periods." In the second, there is only a single "time period," which is "periodic." Because the specification distinguishes these embodiments, a timer that provides a "***periodic*** time

period" (a regular interval, *e.g.*, every 5 seconds) cannot logically be equated with "timer output corresponding to a ***plurality*** of time ***periods***" (irregular intervals, *e.g.*, 5 seconds, then 8 seconds, then 2 seconds, etc.). The only meaning of "periodic" that is consistent with this description is that the periodic timer of the claims provides an output that does not correspond to a "plurality" of differing time periods, but that instead corresponds to a ***single***, periodic time period—*i.e.*, regular intervals. Immersion's proposed interpretation, in contrast, would effectively read the word "periodic" out of the claims by giving it no discernible meaning.

The second time claim 14 uses the term "periodic" is in the phrase "a vibrotactile device responsive to the timer that provides ***a corresponding periodic haptic output***." Again, the '299 specification could not be clearer that "periodic" haptic outputs are outputs that occur at ***regular*** intervals, not the ***irregular*** intervals that Immersion argues are included within the scope of "periodic." As with the periodic timer outputs with which the claim says they "correspond," the specification contrasts "***periodic***" haptic outputs from haptic outputs that occur ***irregular*** intervals. In particular, the specification explains that "the haptic output may be [1] a single haptic output, [2] a plurality of ***haptic outputs of similar or different durations***, [3] a ***periodic haptic output*** and/or [4] other haptic outputs." '299 patent at 8:55–58. By its plain terms, Claim 14 covers only the "periodic" haptic output embodiment. That the specification expressly distinguishes "a plurality of haptic outputs of similar or different durations" from a "***periodic*** haptic output" leaves no doubt that the "periodic haptic output" of claim 14 cannot properly be construed to encompass outputs of "similar or different durations"—*i.e.*, irregular intervals.

Although the intrinsic evidence alone is all that is needed to understand the correctness of Fitbit's construction, extrinsic evidence from the time of the '299 patent also confirms that "periodic" means "occurring at regular intervals." *See, e.g.*, Declaration of Lien Dang ("Dang Decl."), Ex. 1 (Academic Press Dictionary of Science and Technology) at 5819 ("occurring at ***regular intervals***"), Ex. 2 (Collins Dictionary of Mathematics) at 5824 ("***regularly repeating***; for example, a periodic continued fraction or decimal expansion"), Ex. 3 (McGraw-Hill Dictionary of Scientific and Technical Terms) at 5827 ("***repeating*** itself identically at ***regular intervals***").

Despite all this intrinsic and extrinsic evidence, Immersion insists that "periodic" can cover ***irregular*** intervals. In support of that argument, Immersion relies on the specification's statement that "[o]ther recommendations include making regular visits to the dentist and ***periodically replacing old toothbrushes***." Br. at 12; '299 patent at 1:27-30. This statement does not come close to supporting Immersion's argument. This quotation concerning the frequency of replacing toothbrushes is from the background section, not the description of the invention, and bears no relationship to the alleged invention or the operation of the claimed "timer output" or "haptic output." Moreover, Immersion's claim that "Fitbit cannot reasonably contend that the patentee was stating that people replace old toothbrushes at identical time intervals" is unsupported and wrong. Nothing in the patent suggests this unrelated use of "periodically" refers to *irregular* intervals, as Immersion suggests: for instance, nothing suggests that people replace toothbrushes in an irregular fashion, let alone equates such a situation to someone replacing their toothbrush "periodically."

Even the case Immersion cites, *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362 (Fed. Cir. 2012), supports Fitbit, not Immersion. In *Thorner*, the Federal Circuit held that "[w]here the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." *Thorner*, 669 F.3d at 1366. The Federal Circuit further held that "[t]he patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." *Id.* The *Thorner* standard is easily met here. The '299 specification demonstrates a clear intent to limit "periodic" to "occurring at regular intervals" by distinguishing it from "haptic outputs of similar or different durations" and "timer output corresponding to a plurality of time periods." To the extent Immersion argues this is not a "redefinition" of the term "periodic," there is no requirement under *Thorner* or any other case to show an intent to "redefine" the term, because the patentee's use of the term was consistent with one of the alternative definitions. This is confirmed even by Immersion's own cited dictionary definitions. Br. at 12 (showing three definitions, the second of which is "[h]appening or appearing at

regular intervals"). The applicants explained in the specification which definition of "periodic" they were using, and that is the definition that must control under *Thorner*.

2. "a processing device that receives the sensor output and accumulates counts associated with the sensor output, the processing device providing an output to the vibrotactile device once a threshold associated with the accumulated counts is reached" (claim 14)

The '299 patent fails to disclose any particular algorithm implementing the claim function.[7] As with the '105 patent, the specification must disclose a particular algorithm for the processor-based structure, for each individual part of the function. The primary dispute over this element boils down to Figure 3 of the '299 patent. According to Immersion, Figure 3—which is a functional flow diagram relating to "a method for monitoring brush strokes"—provides the required algorithm. Br. at 13-14. But Figure 3 merely restates the claimed function, which cannot suffice. *Cloud Farm*, 674 F. App'x at 1011 ("Merely restating the function in the specification is insufficient to provide the required algorithm."). Specifically, Figure 3 contains a five-step overview describing the claimed procedure at the same level of detail in nearly exactly the same words:

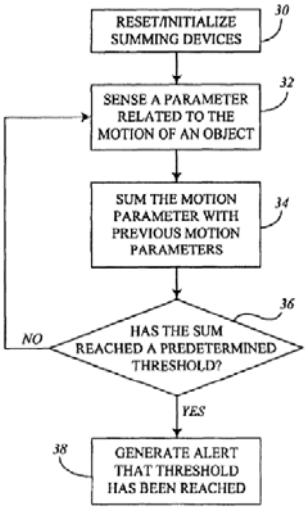

FIG. 3

[7] The parties agree that the term "a processing device that receives the sensor output and accumulates counts associated with the sensor output, the processing device providing an output to the vibrotactile device once a threshold associated with the accumulated counts is reached" should be governed by 35 U.S.C. § 112(6). The parties also agree on the claimed function as described in the above table, that the corresponding structure is the "processing device 22 and equivalents thereof."

'299 patent at Fig. 3. This cannot suffice for sufficient corresponding structure. For example, in *Noah Systems*, the term at issue was an "access means" that enables "the first entity and/or the agent [to] perform one or more of the activities selected from the group consisting of entering, deleting, reviewing, adjusting and processing the data inputs." *Noah Sys.*, 675 F.3d at 1314. In attempting to locate a corresponding algorithm in the specification, the patentee pointed to two complex flow diagrams, and language in the specification explaining that "[t]his *access to the master ledger . . . allows the agents* to perform activities selected from the group consisting of entering, deleting, reviewing, adjusting and processing data inputs in the master ledger" and "[l]ine 41 then leads to box 44 where the access to the data inputs in the master ledger is set forth . . . At this box 44, change orders, recording instruction adjustments, manual transactions and the like *can be entered by the agents* or the interactive users." *Id*. at 1317. The court found the claim indefinite because "[t]his type of purely ***functional*** language, which ***simply restates the function*** associated with the means-plus-function limitation, is insufficient to provide the required corresponding structure." *Id*. The same should be true here. To give Immersion the benefit of means-plus-function claiming while allowing it to describe the function in the specification in the ***same*** terms as in the claims violates the quid-pro-quo principle of *Noah Systems*, described above in Section III.B.1.a, because it does not confine the protection to something less than the functional claim language. *Id.* at 1318. The claims should be found indefinite to avoid this unfair result.

Immersions' arguments bear this out. For example, Immersion contends that block 32 is the corresponding algorithm for the claimed function of "receiv[ing] the sensor output." Br. at 14. But Block 32 is merely a box containing the step of "sens[ing] a parameter related to the motion of an object." This black-box like disclosure provides no particular algorithm whatsoever to show how a processing device 22 or equivalents thereof could "receive the sensor output," let alone "sense" it. Indeed, "sensing" and "receiving sensor output" do not correspond in the first instance. One is performed by the sensor and one is performed by the processor, from the sensor. Likewise, Immersion contends that block 34 is the corresponding algorithm for the claimed function of "accumulat[ing] counts associated with the sensor output." But Block 34 says nothing more than just that. Far from containing an algorithm for how to accumulate counts, Block 34 merely repeats

the claim language in slightly different terms, reciting the step of "sum[ming] the motion parameter with previous motion parameters." There is no difference between "accumulating" the claimed counts and "summing" them with prior counts. Immersion's contentions that blocks 36 and 38 are the corresponding algorithm for the claimed function of "provid[ing] an output to the vibrotactile device once a threshold associated with the accumulated counts is reached" are similarly flawed. Br. at 14. Once again, Blocks 36 and 38 merely repeat the claim language in slightly different terms, stating "generate alert that threshold has been reached" after determining "has the sum reached a predetermined threshold?" There is no difference between that and providing a vibrotactile output once a threshold is reached, as stated in the claims. Immersion's main argument thus fails because its alleged structure does not limit the functional claim language. *See, e.g.*, *ePlus*, 700 F.3d at 519 (finding means-plus-function limitation indefinite where the specification did not meaningfully limit claim scope beyond using the claim language).

Immersion attempts to supplement the insufficient disclosure in Figure 3 with descriptions from the specification regarding the blocks of Figure 3. But none these descriptions add substance to the repetition of the claimed function found in Figure 3. Specifically, the description of block 32 adds nothing to the mere recitation of the bare functional language in in block 32:

> "[I]n block 32, a ***parameter related to the motion of an object is sensed***. The sensed motion parameter can be detected by any suitable type of detection device capable of sensing vibration, oscillation, rotation, acceleration, or other parameter related to motion or change of motion. In some embodiments, the sensed motion parameter can be converted to an electrical signal if necessary."

'299 patent at 6:53–59. This disclosure does not explain how a processing device 22 or equivalents thereof can "receive the sensor output," nor is that step even recited. Similarly, the description of block 34 of Figure 3 in the specification adds nothing to the mere recitation of functionality:

> "[I]n block 34, the ***motion parameter that is sensed in block 32 is summed with previously sensed motion parameters***. This summation procedure creates a running total or accumulative amount associated with the motion parameter being sensed. The motion parameter may include a count of the number of strokes that the user exerts on the object. In other embodiments, the motion parameter being sensed may be a stroke force or stroke length, wherein an accumulation of forces or lengths is summed in block 34. In some embodiments, the accumulation may involve the building up of an electrical charge, such as for charging up a capacitor."

'299 patent at 6:60–7:3. Once again, this disclosure merely restates the claimed function—*i.e.*, summing a motion parameter and keeping a running total. This is a mere restatement of the claim language "accumulat[ing] counts associated with the sensor output." Nothing here, including the recitation to "charg[e] up a capacitor," something every processor in history has done (Hannaford Decl. ¶ 58), transforms the general-purpose processor into something more specific.

Likewise, the description of block 36 of Figure 3 in the specification provides no meaningful addition to the text of block 36:

> "[I]n decision block 36, it is determined whether or not the sum has reached a predetermined threshold. When it is determined that the threshold has not been reached, the method flows back to block 32 to continue sensing additional components of the motion parameter. Eventually, ***when it is determined in block 36 that the threshold is reached***, the method proceeds to block 38, which suggests that ***an alert is generated to notify the user that the threshold has been reached***."

'299 patent at 7:4–12. This is nothing more than a restatement of the claimed function. That is, when the system determines that the predetermined accumulated-count threshold has been reached (*i.e.*, "once a threshold associated with the accumulated counts is reached" in the claim language), the system generates an alert (*i.e.*, "provide[s] an output to the vibrotactile device" in the claim language). Again, there is no specific algorithm transforming a general-purpose processor into something more specific, only a rewording of the functional claim language in even *broader* terms.

Immersion's reliance on *AllVoice* (Br. at 15 (citing *AllVoice*, 504 F.3d at 1245)) is misplaced. Unlike here, the *AllVoice* flow diagram expanded on and explained how to perform the function at issue, rather than merely restating it. The function was "determining positions of the recognised [*sic*] words in the computer-related application." *AllVoice*, 504 F.3d at 1242. The flow diagram pointed to is not a mere restatement of the function, in contrast with Figure 3 of the '299 patent. *Id.* at 1245–46; *see also* U.S. Patent No. 5,799,273 at Fig. 8A. Further, the court specifically found that AllVoice's expert's statement "set forth several straightforward ways that the algorithm represented in Figure 8A could be implemented by one skilled in the art using well-known features of the Windows operating system (messages, operating system function calls, and hooking)." *Id* at 1245. Here, neither Immersion nor its expert explains any specific ways that Figure 3 of the '299 patent could be implemented by one skilled in the art. Immersion's Opening Claim Construction Brief is

devoid of such explanation, and Immersion's expert makes conclusory statements such as "[h]ow to sense a parameter output by a sensor, such as an accelerometer, was well-known in the art at the time of this invention" or "[a] person of ordinary skill in the art at the time of this invention would be able to sum motion parameters provided in the previous step of the algorithm." *See, e.g.*, Meldal Decl. ¶¶ 41, 42.

Moreover, as with the '105 patent, Immersion cannot rely on the knowledge of a person of skill in the art to fill in what is missing in the patent's disclosure. *See* Section III.B.1.a; *Aristocrat Techs.*, 521 F.3d at 1337; *ePlus*, 700 F.3d at 519-20. The Federal Circuit in *Noah Systems*, which came after Immersion's case, *AllVoice* and cited it for other issues, specifically rejected that argument. *Noah Sys.*, 675 F.3d at 1317. And as with the '105 patent, Immersion cannot argue that the limitations are so simple that they do not require disclosure of a corresponding algorithm. *Noah Sys.*, 675 F.3d at 1318. There are many ways the claimed function could be implemented, but none are disclosed. For example, to perform the function of "accumulat[ing] counts associated with the sensor output," a processor could access counts from a hardware counter such as a counter chip connected to a sensor that senses motion. Hannaford Decl. at ¶ 54. This could be performed using a variety of algorithms, such as accessing counts one by one as they occur in the counter, or in batches. *Id.* Alternatively, the processor could increment a variable each time an output from the sensor is received. *Id.* To provide greater granularity in "accumulating counts," the processor could instead add a number proportional to sensor output each time a sensor output is received. *Id.* Similarly, to perform the function of "providing an output to the vibrotactile device once a threshold associated with the accumulated counts is reached," a processor could compare a binary value representing the accumulated counts against another binary value (the threshold), or it could compare a number representing the analog voltage on a capacitor with a binary value. *Id.* Different approaches are available to address these items, but none are specified or explained in the specification. *Blackboard,* 574 F.3d at 1385.

Lastly, Immersion's estoppel arguments fail for the same reasons as with the '105 patent. *See* Section III.B.1.b.

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